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**BY FAX TO: (202) 693-9441**

Ms. Rebecca J. Smith  
Acting Director  
Office of Standards, Regulations, and Variances  
Mine Safety and Health Administration  
1100 Wilson Blvd., Room 2350  
Arlington, VA 22209-3939

RE: Comments of Placer Turquoise Ridge, Inc./Placer Dome America Holding Corp., concerning the Mine Safety and Health Administration's Proposed Rule on Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Mines  
70 Fed. Reg. 53280 (Sept. 7, 2005)  
RIN: 1219-AB29

Dear Ms. Smith:

We appreciate the opportunity to present these comments on behalf of Placer Turquoise Ridge, Inc. ("Turquoise Ridge"), and its corporate parent, Placer Dome America Holding Corp. ("Placer Dome"), in response to the Proposed Rule on Diesel Particulate Matter ("DPM") Exposure of Underground Metal and Nonmetal Miners issued by the Mine Safety and Health Administration ("MSHA" or "Agency"), and published in the *Federal Register* on September 7, 2005 (70 Fed. Red. 53280) ("Proposed Rule"). The Proposed Rule would, among other things, revise the effective date of the existing DPM final concentration limit of 160 micrograms of total carbon ("TC") per cubic meter of air ("160<sub>TC</sub> µg/m<sup>3</sup>"). The

current effective date of May 20, 2006, for the final DPM level would be replaced with staggered effective dates phased in over five years.

Turquoise Ridge, formerly known as Getchell Gold Corporation, operates the Turquoise Ridge Mine, an underground gold mining operation in Nevada that is subject to the Agency's DPM rules. Turquoise Ridge has been an active participant throughout the DPM rulemaking process and is a party to court challenges to the January 19, 2001 final rule addressing the health hazards of underground metal and nonmetal miners from exposure to DPM (66 Fed. Reg. 5706) ("2001 Final Rule") and the June 6, 2005 final rule revising the interim DPM concentration limit (70 Fed. Reg. 32868) ("2005 Final Rule").

Turquoise Ridge is pleased that MSHA has acknowledged the "feasibility issues that have surfaced since promulgation of the 2001 final rule" and commends the Agency for proposing a phase-in of the final permissible exposure limit ("PEL"). However, there is no scientific basis for the proposed final PEL and MSHA's efforts to address feasibility issues through the Proposed Rule fall short in several respects: (1) neither the phased in steps nor the final PEL of 160<sub>TC</sub> µg/m<sup>3</sup> are technologically or economically feasible; (2) the phase-in of the final PEL should have fewer steps and extend over a longer period; and (3) provision should be made for special extensions for periods longer than one year, that would include transparent criteria for granting such extensions and an appeals process.

## THE PROPOSED EXPOSURE LIMIT IS NOT FEASIBLE

The Proposed Rule would retain the interim exposure level of  $308_{EC} \mu\text{g}/\text{m}^3$  until January 2007, then reduce the limit by the equivalent of  $50_{TC} \mu\text{g}/\text{m}^3$  each year through January 2011. MSHA asks whether the reduction beginning in 2007 is feasible - Turquoise Ridge believes that it is not.

MSHA discussed the feasibility of the interim PEL in the 2005 Final Rule by reference to the U.S. Supreme Court's discussion of OSHA health standards in *American Textile Manufacturers' Institute v. Donovan*, 452 U.S. 490 (1981). In that case the Supreme Court clarified the meaning of feasibility as "capable of being done, executed, or effected," both technologically and economically. The Federal Mine Safety and Health Review Commission ("Review Commission") has applied the reasoning of *American Textile Manufacturers'* to MSHA cases and has added that a workable engineering control "must have a realistic basis in present technical capabilities." *Secretary of Labor, MSHA v. Callanan Industries*, 5 FMSHRC 1900 (Rev. Comm. 1983).

Turquoise Ridge does not believe there is a "realistic basis in present technical capabilities" that would enable its mining operations, or those of similarly situated underground metal mines, to meet either the phased in or final exposure limits contained in the Proposed Rule. There is not an adequate array of mine-worthy, technically feasible solutions that are readily available for

implementation in underground metal and nonmetal mines. This conclusion is confirmed by MSHA's statement in the Proposed Rule that "effective control technology that will reduce exposures to the final limit is *speculative* at this time." 70 Fed. Reg. at 53285 (emphasis added.)

DPM data based on experience at the Turquoise Ridge Mine is limited because operations at the mine were limited for a number of years after issuance of the 2001 Final Rule. During the early fall of 2001, Placer Dome made the decision to close the Turquoise Ridge Mine, and by February 2002, all but thirty-seven employees were terminated. By mid-2002, Placer Dome reconsidered the decision to close the mine, authorized completion of *limited* underground development, and initiated mining a small test stope. By the end of the year there were only fifty employees at the Turquoise Ridge Mine.

Placer Dome gave approval to restart the Turquoise Ridge Mine to achieve commercial production in the second quarter of 2003. Construction began during the summer of 2003 and extended through 2004. During this construction period the ventilation system was upgraded, increasing the capacity by more than 100%. During 2004 and 2005, production gradually increased, although current production is only half of the final anticipated level of approximately 1200 tons per day.

Until recently most underground diesel equipment at the mine was operated intermittently. Even now the duty cycles of most equipment is below optimum levels. However, sustained mining operations are at a level that will allow Turquoise Ridge to begin testing alternative fuels and the collection of essential data as a prerequisite to diesel particulate filter (“DPF”) testing. Based on the experiences of similar mines under similar circumstances, Turquoise Ridge is skeptical that DPF’s will be effective at the Turquoise Ridge Mine. Turquoise Ridge does not consider technology that has failed at similar mines to be “feasible” at the Turquoise Ridge Mine.

The Turquoise Ridge Mine differs from many metal and nonmetal mines because of the dead-end nature of mining in a drift. At the Turquoise Ridge Mine ventilation air is drawn into the mine through a shaft, distributed through the mine through the main haulage ways, and discharged through a second shaft. Actual mining takes place in dead-end headings off the main haulage. Ventilation air is drawn off the main haulage at the entrance to the dead-end heading and forced to the working face by a large (50 hp to 100hp) axial flow fan through a 40 to 50 inch diameter fabric ventilation tube. Air is exhausted back out of the dead-end heading to the main haulage where it mixes with the main ventilation air traveling along the haulage.

Most of the mine cycle in the working face is accomplished with electrical powered equipment; however, when the dead-end heading needs to be backfilled diesel equipment must be used and the ventilation tubing must be retracted from the active area. The result is increased diesel exhaust and reduced ventilation. The same problem exists, although for a shorter time, during the mining of the face where blasted rock (muck) is excavated from the face area.

With this background some observations about the potential use of DPF's at the Turquoise Ridge Mine can be made. As indicated above, the highest levels of DPM at the mine occur during backfilling operations. This involves two pieces of equipment, a jammer that packs the backfill tight, and a small loader that moves backfill to the face for the jammer to push. This equipment does not operate in the long, steady throttle, high power duty cycles that would allow passive filters to work efficiently. Active filters require that equipment be idled for a considerable period of time either with on board regeneration, or with an off board filter change-out system. This downtime is not feasible in the Turquoise Ridge Mine's 24-hour continuous operation. In addition, active systems require considerable space that does not exist at the Turquoise Ridge Mine. Reports indicate that these systems can increase carbon monoxide and other emissions, which is problematic given limitations on ventilation.

Turquoise Ridge believes that properly sized and fitted filters can reduce DPM emissions, and the Turquoise Ridge Mine is now at the sustained level of production to begin testing. As part of this process Turquoise Ridge strongly recommends that a mine operator not be required to test technology that has failed at similar mines under similar circumstances. Some DPF's will undoubtedly be fitted to equipment at the Turquoise Ridge Mine, but they are not feasible for the highest DPM areas.

The record to date has identified other feasibility problems with DPF's that include the physical size of filter systems, the short life span of filter elements, the required downtime for regeneration of active regeneration systems, the need for regeneration stations with electric power and a compressed air supply near producing zones for active regeneration systems, the need for major equipment modification for some filter systems and the need for high exhaust temperatures generated over a duty cycle for passive filter systems. Excessive engine backpressure, with the potential for voiding an engine warranty and causing significant engine damage, is also a critical problem. In sum, the majority of filters and systems are impractical or infeasible.

The feasibility problems with the use of alternative fuels include availability of supply, clogging of filters, high cost, need for heated storage, power loss and the

fact that some engine manufacturers do not recommend blends at the level required to produce reductions in DPM.

Alternative fuels have been unavailable in reasonable proximity to the mine until recently. Now, bio-diesel fuel, water-emulsified diesel fuel, and synthetic diesel fuel are available on a limited basis. Turquoise Ridge has met with fuel suppliers and engine manufacturers to evaluate the options, but feasibility problems have already been identified. Two manufacturers of engines used at the Turquoise Ridge Mine, Cummins and Detroit Diesel, recommend against the use of water-emulsified diesel fuel in their engines. Cummins recommends a bio-diesel fuel mix of no greater than 5%, but that mixture does not result in a significant DPM reduction. Bio-diesel fuel requires separate heated storage facilities since it tends to gel at 35° F. Synthetic diesel fuel is an attractive alternative since manufacturers do not have the same concerns about engine damage as they do with bio-diesel fuel and water-emulsified diesel fuel, but suppliers have indicated that synthetic fuels provide only one-half the DPM reduction of a 20% to 30% bio-diesel fuel mixture at a 50% increase in cost over current fuel. In addition, the nearest currently available source of synthetic fuel is in Louisiana.

Turquoise Ridge has taken significant steps to reduce exposure to DPM. In March of 2005 a new main ventilation system was commissioned, which doubled

the ventilation flow through the mine. Additional ventilation upgrades are planned, and are designed to better distribute the current flow rate throughout the mine. During the last two years Turquoise Ridge has purchased fifteen Tier 2 engines that, along with thirty Tier 1 engines, constitute 42% of the current underground fleet and 54% of the total horsepower. (See Table I below.) All new equipment purchases will be at least Tier 2 and all replacement engines will be at least Tier 2, except for equipment where Tier 2 replacement engines do not exist. Two new 36-ton haul trucks with environmental cabs and Tier 2 engines have been purchased and are being assembled underground at this time.

Tier Level	Total Number	Total Horsepower	% of Total Number	% of Horsepower
1	30	6381	28	46
2	15	1044	14	8
None	64	6447	58	46

Table I

Despite the efforts made to date, Turquoise Ridge has been unable to meet the interim exposure limit of  $308_{EC} \mu\text{g}/\text{m}^3$  at all times and in all locations. It is not technologically or economically feasible for the Turquoise Ridge Mine to meet the even lower phased in or final exposure limits contained in the Proposed Rule.

MSHA discussed the current state of technology in the 2005 Final Rule that established the interim exposure limit and acknowledged that:

the current DPM rulemaking record lacks sufficient feasibility documentation to justify lowering the DPM limit below  $308_{EC} \mu\text{g}/\text{m}^3$  at this time.... MSHA believes that this interim limit is reasonable, and that MSHA can document feasibility across the affected sector of underground M/NM mines.

70 Fed. Reg. at 32916. And the Proposed Rule concluded:

that it is questionable whether the final concentration limit of  $160_{TC} \mu\text{g}/\text{m}^3$  would provide any more protection for miners than the  $308_{EC} \mu\text{g}/\text{m}^3$  interim limit.

70 Fed. Reg. at 53288. If an exposure level of  $308_{EC} \mu\text{g}/\text{m}^3$  is reasonable, feasible and provides health protection, while exposure levels below  $308_{EC} \mu\text{g}/\text{m}^3$  have not been shown to be feasible or provide greater health protection, then MSHA has no basis for lowering the exposure level below  $308_{EC} \mu\text{g}/\text{m}^3$ .

Turquoise Ridge is striving to and believes it will reach the interim exposure level of  $308_{EC} \mu\text{g}/\text{m}^3$  at all times and in all sections of the mine once the significant steps already taken to improve ventilation, acquire Tier 1 and Tier 2 engines and environmental cab equipment, can be supplemented with other feasible control technology. However, should the reductions in the final limit be implemented as proposed, the only means by which Turquoise Ridge could obtain compliance would be through an increased use of respirators. (See Table II.) The results, we believe, are unacceptable. Current data indicates that at the current final exposure level of  $160_{TC} \mu\text{g}/\text{m}^3$ , over 90% of underground miners at the Turquoise Ridge Mine would be required to wear respirators.

DPM Standard	<b>308<sub>EC</sub></b>	<b>280<sub>EC</sub></b>	<b>250<sub>EC</sub></b>	<b>220<sub>EC</sub></b>	<b>190<sub>EC</sub></b>	<b>160<sub>EC</sub></b>	<b>160<sub>TC</sub></b>
Percent Respirators Required	47	52	56	63	72	78	91

Table II

**PHASE-IN OF THE FINAL PEL SHOULD BE MODIFIED**

MSHA requests comments on whether five years is the correct timeframe for reducing miners' exposure to the final limit and whether the reductions should be annually. The length of time for phase-in to the final PEL is a function of the exposure limit being phased to and assumptions about future technological developments. Turquoise Ridge believes that the appropriate final limit, based on what is currently known, is the interim limit of 308<sub>EC</sub> µg/m<sup>3</sup>. It is not technologically or economically feasible for the Turquoise Ridge Mine to meet the phased-in or final PELs contained in the Proposed Rule. Nor is Turquoise Ridge confident that technological developments will occur in a timeframe that will allow compliance with the proposed phased-in limits. While five years might be the appropriate timeframe for a phase-in to a final limit of, for example, 250<sub>EC</sub> µg/m<sup>3</sup>; Turquoise Ridge believes a longer phase-in period of six or eight years is much more realistic for a final PEL of 160<sub>TC</sub> µg/m<sup>3</sup>.

Turquoise Ridge believes it is impractical and inefficient to change the applicable PEL annually. Although Turquoise Ridge is committed to implementing those controls necessary to reduce miners' exposure to DPM, the design of the Turquoise Ridge Mine is such that after-market add-ons are unlikely to be the reliable, efficient, long-term solution to DPM reduction. Alternative fuels and engine replacement are part of the solution. In the long-term, however, engine manufacturers must develop cleaner engines. Unfortunately, the underground mining sector of the engine industry is so small that mining needs will have little impact on the pace of technological development. The technological developments necessary for compliance with the proposed PEL to be feasible will not occur in equal, arbitrarily determined increments on an annual basis.

Turquoise Ridge believes it is in the best interest of all of those concerned about DPM exposure to invest time, effort and money toward a long-term solution. With annual deadlines and new limits, mine operators will be required to constantly seek solutions to the immediate problem – the next annual limit reduction. Expenditures will, of necessity, be based on achieving the arbitrarily determined increment of progress for that year. Turquoise Ridge is convinced that more progress can be made with the same investment in time, effort and money, if that investment is made in a six or eight year plan, than in six or eight one-year

plans. MSHA should substitute a two-phase plan over six or eight years for the proposed five-phase plan over five years.

Turquoise Ridge assumes, and recommends, that special extensions of time for compliance with the appropriate PEL, be consistent with the phased periods. Granting extensions for periods greater than one year will reduce the administrative burden on mine operators and MSHA of perpetually preparing, investigating, reviewing, determining, and possibly appealing extension requests. This is a further justification for substituting longer phased periods for the one-year phases in the Proposed Rule.

**THE SPECIAL EXTENSION PROCESS SHOULD BE CLARIFIED**

Turquoise Ridge is pleased that the Proposed Rule provides for renewable extensions of time where it is technologically or economically infeasible for a particular mine operator to achieve compliance. As is evident from these comments, the ability of Turquoise Ridge to comply with the DPM rules will be dependent, to a large extent, on the grant by MSHA of extensions of time to comply with the exposure limits. Turquoise Ridge recommended that phase-in to the final PEL have fewer, but longer, phases. For similar reasons, longer extension periods would be practical, efficient, and reduce the administrative burden on mine operators and MSHA. Longer extensions would allow the parties to concentrate

time, effort and money on achieving the long-term goal of DPM reduction, rather than on preparing and processing extension requests.

Turquoise Ridge believes that the extension process should be formalized, efficient and transparent. The extension provision should contain the following: (a) a description of materials that must be provided in support of a request for extension; (b) a description of the contents of a request for extension; (c) clear criteria for granting an extension; (d) a specified and abbreviated timeframe for rendering a decision; (e) the requirement that a denial of a request for extension contain a written explanation of the reasons compliance was determined to be technologically and economically feasible; (f) procedures for an appeal to the Administrator for a denial of a request for extension or for a failure to act on a request; and (g) an expedited procedure for further appeal to the Review Commission.

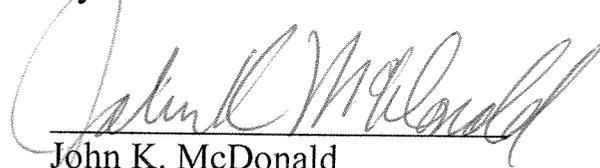
Specifically, guidelines should clearly specify the criteria for determining feasibility of compliance. An extension should be granted unless there is an engineering control that is capable of actually being implemented at the mine seeking the extension. There should be credible evidence that implementation of the engineering control will actually reduce miners' exposure. There should be a determination that costs of the control are not wholly out of proportion to the expected benefits. Control technology that has been tested within the industry and

found to be infeasible, should not be considered a feasible technology for similar mines under similar circumstances. The denial of a request for extension should be in writing and include specific reasons for the denial, including an explanation of how compliance was technologically and economically feasible. The District Manager should be required to issue a determination within 60 days. The mine operator should have the right to appeal the denial of a request for extension to the Administrator and the Administrator should be required to issue a determination within 30 days. The final rule should include a clear mechanism of appeal from an adverse determination of the Administrator to the Review Commission.

We thank you again for the opportunity to comment on these issues of critical importance to Turquoise Ridge and the future of the underground metal mining industry. Turquoise Ridge pledges its continued cooperation in seeking satisfactory answers to the remaining problems in the control of DPM exposure.

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